Exhibit E

Exhibit E-2

INVALIDITY CONTENTIONS FOR U.S. PATENT NO. 7,177,369
BASED ON USP 6,940,827 ("LI 827")

Based upon Plaintiff's Complaint, Infringement Contentions, and apparent claim constructions and application of the claims to Defendant's accused products, as best as they can be deciphered, the reference charted below anticipates or at least renders obvious the asserted claims. These invalidity contentions are not an admission by the Defendant that the accused products are covered by or infringe the asserted claims, particularly when these claims are properly construed and applied. These invalidity contentions are not an admission that the Defendant concedes or acquiesces to any claim construction implied or suggested by Plaintiff's Complaint or Infringement Contentions. Nor is Defendant asserting any claim construction positions through these charts, including whether the preamble is a limitation. The portions of the prior art reference cited below are not exhaustive but are exemplary in nature.

U.S. Patent No. 6,947,748 to Li et al. ("Li 827") was filed on March 9, 2001 and issued on September 6, 2005. This patent is prior art under at least 35 U.S.C. § 102(a)(b)(e)(g), and 103(a). As described in the following claim chart, the asserted claims of U.S. Patent No. 7,177,369 (the "'369 Patent"), are invalid as anticipated by Li 827. This patent also published as U.S. Pat. Appl. No. 2002/0159422 on October 31, 2002. The citations below are to the '827 patent, but Defendants intend to rely upon corresponding passages of this published application as appropriate.

To the extent that Li 827 is found not to anticipate one or more of the asserted claims of the '369 Patent, these claims are invalid as obvious in view of Li 827 alone or in combination with other prior art references disclosed in Defendant's Invalidity Contentions and accompanying charts, including without limitation as set forth below.

Note that Li 748 is expressly incorporated by reference into Li 827. These two references (Li 748 and Li 827) can be combined under multiple different theories including: (1) that the incorporation by reference establishes that Li 827 has all of the content of Li 827 for purposes of anticipation; and (2) that the incorporation by reference establishes a express motivation to combine the two references with a reasonable expectation of success for purposes of obviousness. That combination is identified by taking the content of the Li 748 charts for each element and including it within (and combining it with) the content for this Li 827 chart on an element by element basis.

In addition, the charts below reference the following two textbooks (both 102(b) references) that exhibit the knowledge of a POSITA:

Holma, WCDMA for UMTS: Radio Access for Third Generation Mobile Communications 1st Edition, Authors Harri Holma and Antti Toskala, Publisher: Wiley, Publication date June 7, 2000, ISBN-13 : 978-0471720515; ISBN-10 : 0471720518.

Yang, "CDMA RF System Engineering", Publisher: Artech House Publishers, Publication date: April 30, 1998, ASIN: B0048D4TXK.

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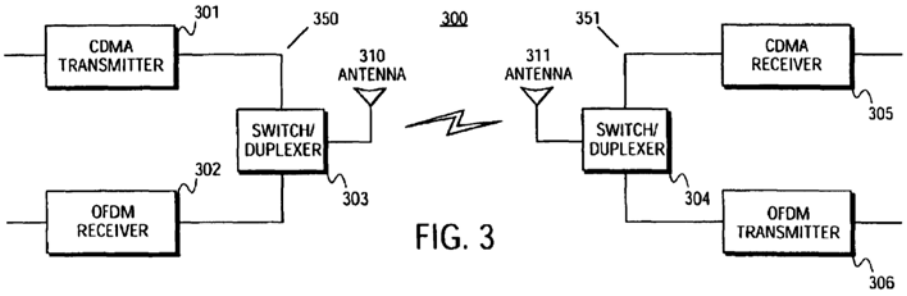
Claim 1	
1[p] A method comprising:	To the extent the preamble is limiting, Li 827 discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. For example, see the following passages and/or figures, as well as all related disclosures: Li 827 set forth a system that does the channel estimation in the frequency domain, converts that estimation into a time domain system and uses the estimation to adjust OFDM tone power levels. Li 827 discloses that "FIG. 3 is a block diagram of a communication network using OFDM for transmission in one direction and CDMA for transmission in the other direction" wherein "In one embodiment, system 350 comprises a subscriber in a mobile communication system while system 351 comprises a base station. Thus, as shown in FIG. 3, OFDM is used for downlink. The use of OFDM for downlink may maximize the spectral efficiency and the bit rate. CDMA is used for uplink to substantially avoid the large peak-to-average ratio problem of OFDM and to offer multiple-access flexibility". 5:29-6:8.  FIG. 3

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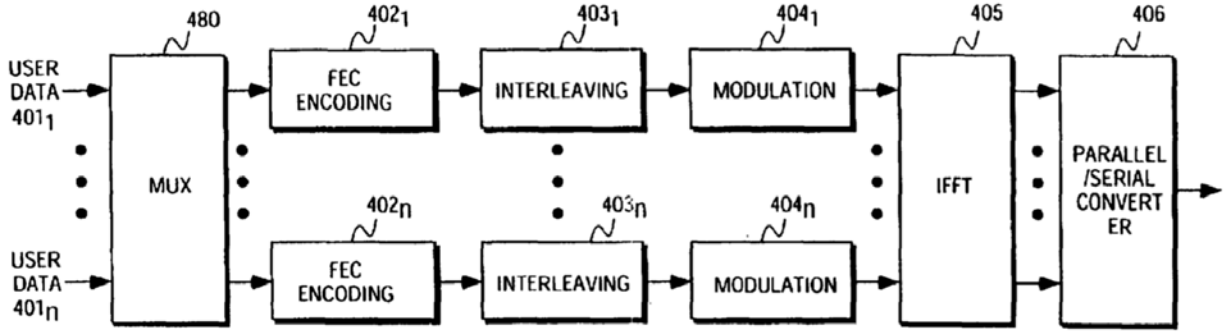
	Additionally, Li 827 discloses that "In one embodiment, the subcarriers of the OFDM downlink are adaptively allocated to multiple subscribers to achieve multiplexing and to increase (and potentially maximize) the system capacity. Information extracted from uplink CDMA signals received at the base station from the multiple subscribers may be utilized for the adaptive subcarrier allocation". 6:9-15. As an example, Li 827 discloses that "a 5 MHz spectrum is used for each downlink OFDM channel. With pulse shaping, the net bandwidth used for data transmission is 4 MHz, which is divided into 512 subcarriers transmitted in parallel" wherein "the subcarriers in one OFDM symbol can be used by multiple subscribers, each using part of the total subcarriers" and "the granularity of subcarrier assignment is increased to a fixed number of subcarriers, called clusters" such that "Any subscriber can be assigned any cluster". 6:16-35. Li 827 discloses that "FIG. 4 is a block diagram of one embodiment of a base station transmitter that uses OFDM for downlink communications" wherein "the base station comprises N processing paths, or chains, labeled 1−n" with "a processing path for each of the n subscribers communicating with the base station". 6:36-43.  FIG. 4

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	Additionally, Li 827 discloses that "As shown in FIG. 4, user data 401_{1-n} comprises data that is to be transmitted to individual subscribers. Multiplexer (MUX) 480, operating as part of a subcarrier allocator, receives the user data 401_{1-n} and outputs cluster data generated as a result of the allocator allocating subcarrier groups for transmission to individual subscriber and the user data being modulated onto the subcarriers". 6:47-43. Li 827 teaches that "the base station adaptively allocates subcarriers to subscribers to increase (and potentially maximize) the spectral efficiency. FIG. 12 illustrates channel responses associated with different subscribers. As shown in FIG. 12, the channel responses corresponding to two subscribers are different. Multi-user adaptive loading increases the total system capacity by allocating subcarriers with relatively high signal-to-noise ratios to a subscriber. The frequency responses are sent to a subcarrier allocator at a base station for adaptive subcarrier allocation, so only subcarriers with relatively high signal-to-noise ratios are allocated for the downlink transmission to a subscriber." 7:10-21.

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	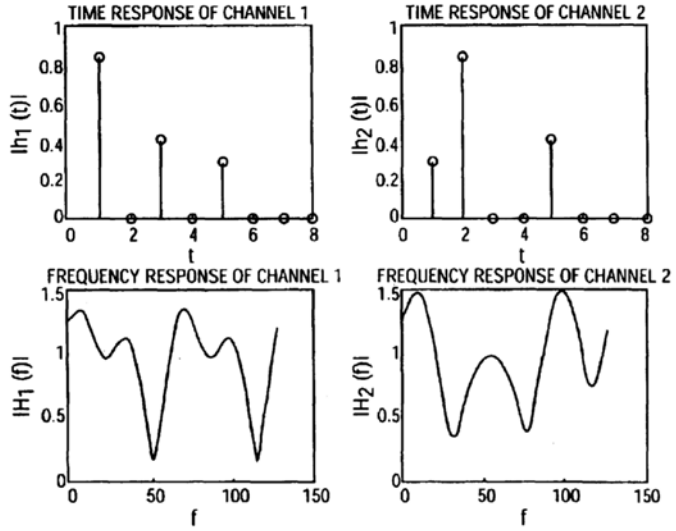 FIG. 12 Li 827 further teaches that "FIG. 7 is a block diagram of one embodiment of a base station having a receiver and a downlink subcarrier allocator" wherein "there are n processing paths coupled to the downlink OFDM subcarrier allocator 707. In one embodiment, each processing path is for an individual user". 8:22-27.

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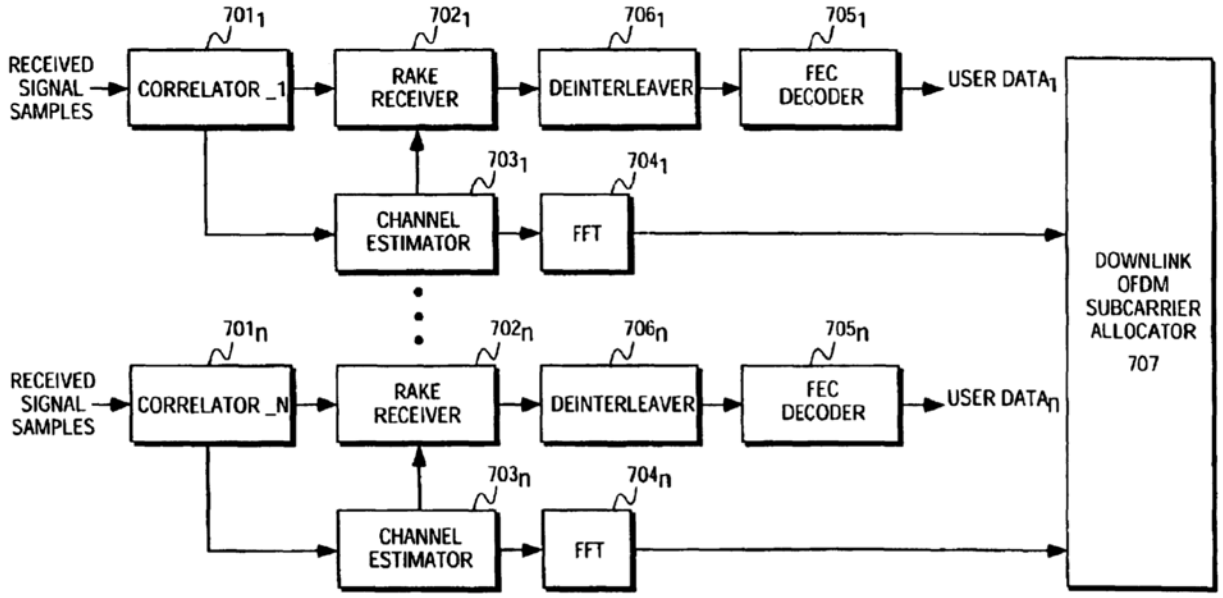

FIG. 7

More specifically in regard to FIG. 7, Li 827 teaches that "The channel estimator 703 estimates the channel response and provides that estimate to Rake receiver 702 and FFT 704" such that "FFT 704 converts the channel response into a frequency response in a manner well-known in the art." and then "Allocator 707 receives frequency responses from FFT 704 for multiple subscribers and allocates subcarriers based on the responses received." 8:50-58.

In one example, Li 827 teaches that "the uplink transmission signal may contain a unique training sequence" that is "utilized at the base station to estimate the channel. Once the channel time response is estimated, its frequency response is derived using FFT 704. The frequency

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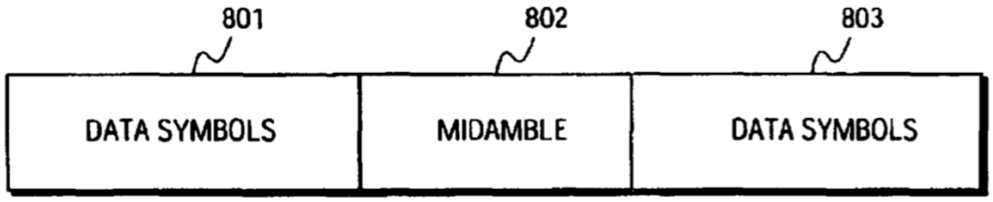
	responses of all the subscribers are sent to the subcarrier allocator 707 for adaptive subcarrier allocation, as shown in FIG. 7". 8:60-67. Also for this example, Li 827 discloses that "FIG. 8 illustrates one embodiment of a data format of a CDMA signal in one time frame. Referring to FIG. 8, data symbols 801 and 803 are on both sides of, optional training symbols, referred to herein as midambles 802. The optional training symbols (midambles), preferably inserted in the middle of the frame, can be used for channel estimation for coherent detection of CDMA signals. The spreading codes for the midambles may be different from the spreading code for the data symbols. Longer spreading codes for the midambles (e.g., twice as long) can improve channel estimation at the receiver and therefore improve the overall performance." 9:16-27.  FIG. 8 Li 827 discloses that "the downlink and uplink transmission is arranged through time division duplexing (TDD)". 10:29-35. Li 827 discloses that "FIG. 2 illustrates OFDM subcarrier clusters and pilot symbols in the time-frequency domain." 2:63-64.

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	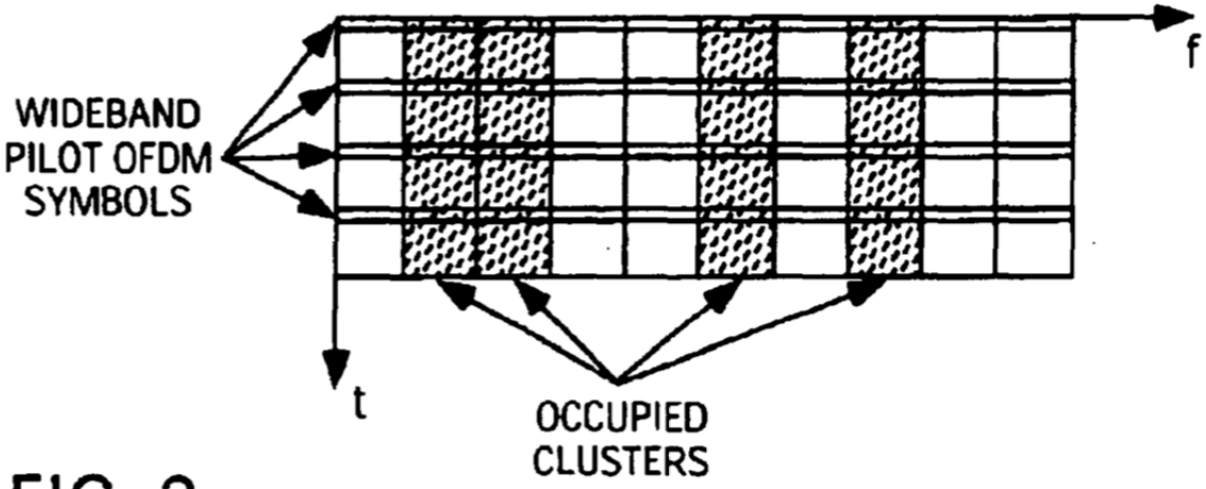 FIG. 2 Note that much of the rest of Li 827 827 is duplicated from the incorporated Li 827 748 patent that similarly does subcarrier cluster allocation for downlink OFDM at the base station. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants’ Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Channel Estimation and OFDM Tone Modification references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.

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1[a] identifying at least one multipath transmission delay within a reverse path data signal received from a receiving device;	Li 827 discloses identifying at least one multipath transmission delay within a reverse path data signal received from a receiving device. For example, see the following passages and/or figures, as well as all related disclosures: See discussion in 1[p] above of the system operation. Li 827 identifies a multipath time delay within the reverse signal path (e.g., a time domain channel estimation) and converts it into a frequency estimation. See Figs. 2, 7, 11, 12. Li 827 teaches that "the base station adaptively allocates subcarriers to subscribers to increase (and potentially maximize) the spectral efficiency. FIG. 12 illustrates channel responses associated with different subscribers. As shown in FIG. 12, the channel responses corresponding to two subscribers are different. Multi-user adaptive loading increases the total system capacity by allocating subcarriers with relatively high signal-to-noise ratios to a subscriber. The frequency responses are sent to a subcarrier allocator at a base station for adaptive subcarrier allocation, so only subcarriers with relatively high signal-to-noise ratios are allocated for the downlink transmission to a subscriber." 7:10-21. See 8:11-9:15: ("FIG. 6 is a block diagram of one embodiment of the subscriber terminal transmitter that uses DSSS/CDMA for uplink communications. Referring to FIG. 6, the uplink data is first encoded with forward error correcting code in FEC encoder 602, and then interleaved through interleaver 603 in the same manner as described above. The receiver then modulates the interleaved data via modulator 604. After modulation, the receiver applies the subscriber's spreading code to the modulated interleaved data via spreading processing block 605. The spreading signal is pulse shaped and sent through the radio frequency (RF) channel. FIG. 7 is a block diagram of one embodiment of a base station having a receiver and a downlink subcarrier allocator. Referring to FIG. 7, there are n processing paths coupled to the downlink OFDM subcarrier allocator 707. In one embodiment, each processing path is for an individual

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	user. Since all of the other paths perform in the same manner, only one of the paths will be described. Note that in a software implementation of the receiver in which the processing blocks of FIG. 7 are implemented in software, signals received using the antenna are sampled and the samples are stored in a memory for processing by the processing blocks. The received signal samples are input to correlator 701, which despreads the samples using the same spreading sequence that was used during transmit and correlates the incoming signal with a subscriber's spreading code. In an alternative embodiments, correlator 701 may be replaced with a match filter. The receiver inputs the output of correlator 701, which is a correlation result, to Rake receiver 702 and channel estimator 703. Rake receiver 702 processes the correlation result via maximum ratio combining in a manner well-known in the art, including performing demodulation, and outputs the processed result to de-interleaver 705. De-interleaver 705 performs de-interleaving and outputs the unscrambled data to FEC decoder 706. FEC decoder 706 performs FEC decoding in a manner well-known in the art. The output of FEC decoder 705 is the user data. This decoded data is then passed to upper data link layer. **The channel estimator 703 estimates the channel response and provides that estimate to Rake receiver 702 and FFT 704. Rake receiver 702 uses the channel estimate to determine which of the fingers to select for combing. FFT 704 converts the channel response into a frequency response in a manner well-known in the art.** Allocator 707 receives frequency responses from FFT 704 for multiple subscribers and allocates subcarriers based on the responses received. In one embodiment, each user is assigned a unique spreading sequence. Furthermore, the uplink transmission signal may contain a unique training sequence, as described below in conjunction with FIG. 8. The sequence is utilized at the base station to estimate the channel. **Once the channel time response is estimated, its frequency response is derived using FFT 704.** The frequency responses of all the subscribers are sent to the subcarrier allocator 707 for adaptive subcarrier allocation, as shown in FIG. 7. In one embodiment, the size of FFT 704, in terms of the number of points, after channel estimation is the same as that for downlink OFDM transmission. In another embodiment with subcarrier clustering, the size of FFT 704 after channel estimation is smaller than that for downlink OFDM transmission. For example, if the size of FFT 704 for the downlink OFDM is

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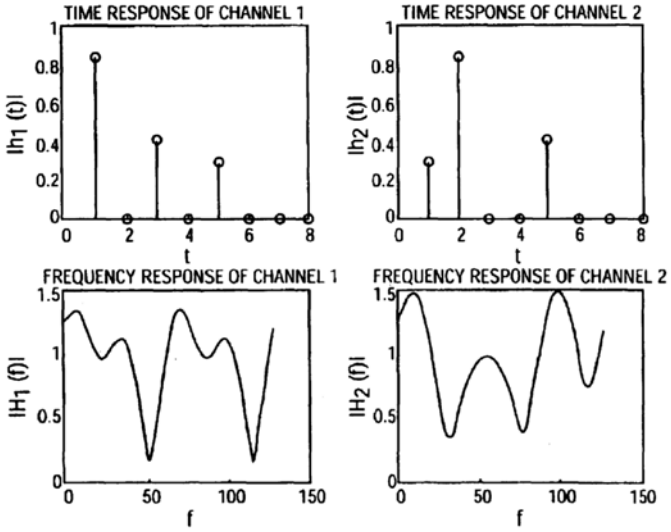
	512 and the number of consecutive subcarriers in a cluster is 16, only a 32-point FFT is needed for channel-frequency response estimation at the base station receiver. In another embodiment, the channel frequency response associate with a subscriber is estimated based on the uplink spreading spectrum signals without the use of training sequences or pilot signals. The frequency response is estimated to within a phase ambiguity, and the amplitude response is untilized in subcarrier allocations.");  FIG. 12 See 7:10-24 ("In one embodiment, the base station adaptively allocates subcarriers to subscribers to increase (and potentially maximize) the spectral efficiency. FIG. 12 illustrates channel responses associated with different subscribers. As shown in FIG. 12, the channel responses corresponding to two subscribers are different. Multi-user adaptive loading increases the total system capacity by allocating subcarriers with relatively high signal-to-noise ratios to a

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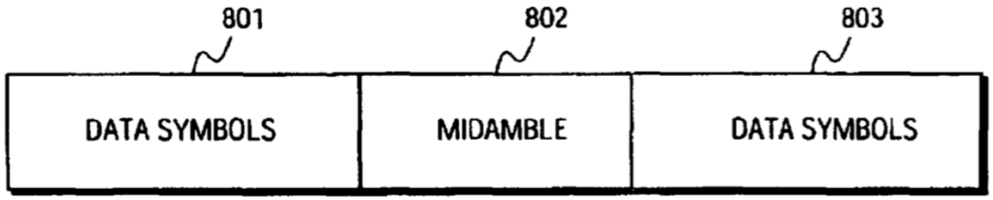
	subscriber. The frequency responses are sent to a subcarrier allocator at a base station for adaptive subcarrier allocation, so only subcarriers with relatively high signal-to-noise ratios are allocated for the downlink transmission to a subscriber. Furthermore, the FEC coding and modulation scheme can be made adaptive depending on the signal-to-noise ratio of each or multiple subcarriers.") Li 827 discloses that "FIG. 8 illustrates one embodiment of a data format of a CDMA signal in one time frame. Referring to FIG. 8, data symbols 801 and 803 are on both sides of, optional training symbols, referred to herein as midambles 802. The optional training symbols (midambles), preferably inserted in the middle of the frame, can be used for channel estimation for coherent detection of CDMA signals. The spreading codes for the midambles may be different from the spreading code for the data symbols. Longer spreading codes for the midambles (e.g., twice as long) can improve channel estimation at the receiver and therefore improve the overall performance." 9:16-27.  FIG. 8 Li 827 discloses that "the downlink and uplink transmission is arranged through time division duplexing (TDD)". 10:29-35. See 7:25-40 (SNR directly derived from the uplink signals…); See 3:57-62 ("In one embodiment, the subcarriers of the OFDM downlink are adaptively allocated to multiple subscribers to increase, and potentially maximize, the system capacity. The

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	uplink CDMA signals received at the base station from the multiple subscribers may be utilized for the adaptive allocation."); See 6:9-15 ("In one embodiment, the subcarriers of the OFDM downlink are adaptively allocated to multiple subscribers to achieve multiplexing and to increase (and potentially maximize) the system capacity. Information extracted from uplink CDMA signals received at the base station from the multiple subscribers may be utilized for the adaptive subcarrier allocation This is described in more detail below.") See 1:44-2:29 ("OFDM is an efficient technique for multipath fading channels. In a well-designed system, the frequency response of each subcarrier can be made flat or near flat. Therefore, only very simple or even no channel equalization is required. Another significant advantage of OFDM is that it allows an optimal power and rate allocation to maximize the channel capacity. This inherent advantage is even more significant in a cellular system with multiple subscribers where the channel response of each subscriber is different. In this case, it is possible to maximize the entire system capacity throughput by judicious allocations of subscarriers to multiple subscribers. On the other hand, OFDM also possesses some disadvantages. One of the disadvantages is the large peak-to-average power (PAP) ratio of the OFDM signals. This is a significant hurdle for implementing OFDM-based systems. A large PAP ratio means more stringent linearity requirements on the power amplifier or large back off, leading to higher cost or lower transmission power. This is especially undesirable for the implementation of subscriber terminals, which dominates the system cost due to their large quantity. In addition, to achieve the maximum capacity of OFDM with adaptive subcarrier allocation, it is often required to feedback the channel measurement at the subscribers to the basestation. This can also add overhead and complicate the system control. DSSS often deals with the multipath channel through the use of so-called Rake receiver, which coherently adds together the signals received from multiple delay paths. However, when the data rate is high and the spreading factor is low, the performance of the Rake receiver degrades.

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	Furthermore, a DSSS signal equally utilizes the entire spectrum, including both high-gain frequencies and low-gain frequencies. Therefore, the potential capacity of DSSS is less than that achieved by OFDM with adaptive subcarrier allocation. On the other hand, a DSSS signal typically has lower PAP than an OFDM signal. In addition, the use of DSSS enables code-division multiple-access that provides great multiple-access flexibility among many multiple-access schemes. Therefore, DSSS is still a very attractive technique especially for subscriber terminal transmission.") See claims 5, 9, 12, 13 (claiming the ability to use FFT to convert the time domain response to frequency domain); One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Channel Estimation references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
1[b] determining at least one forward path pre-equalization parameter based on said at least one transmission delay; and	Li 827 discloses determining at least one forward path pre-equalization parameter based on said at least one transmission delay. For example, see the following passages and/or figures, as well as all related disclosures: See discussion in 1[p] and 1[a] discussing how the time based channel estimate is converted into a frequency based channel estimate. See discussion in 1[c] regarding how frequency based channel estimate is used to adapt power levels.

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	See 8:11-9:15, Figs. 6, 7, 11, 12. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Channel Estimation references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
1[c] modifying a forward path data signal that is to be transmitted to the receiving device based on said at least one forward path pre-equalization parameter, where said modifying includes selectively setting different transmission power levels for at least two Orthogonal Frequency Division Multiplexing (OFDM) tones in said forward path data signal.	Li 827 discloses modifying a forward path data signal that is to be transmitted to the receiving device based on said at least one forward path pre-equalization parameter, where said modifying includes selectively setting different transmission power levels for at least two Orthogonal Frequency Division Multiplexing (OFDM) tones in said forward path data signal. For example, see the following passages and/or figures, as well as all related disclosures: See discussion in 1[p] on operation of system including use of frequency base channel estimate to selectively modify the power levels for the OFDM tones. See 1:44-55. OFDM tones are used on the downlink. See Figures 9-14, 18 and associated descriptions. See 3:18-28 ("FIG. 11 is a block diagram of one embodiment of a duplexing system using CDMA for bi-directional transmission and an additional OFDM channel to enhance the data rate of one direction. FIG. 12 illustrates channel responses associated with different subscribers.

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	FIG. 13 is a flow diagram of one embodiment of a process for allocating subcarriers. FIG. 14 illustrates time and frequency grid of OFDM symbols, pilots and clusters."); 3:48-61("In one embodiment, OFDM is used for downlink to increase, and potentially maximize, the spectral efficiency and the bit rate. … In one embodiment, the subcarriers of the OFDM downlink are adaptively allocated to multiple subscribers to increase, and potentially maximize, the system capacity. The uplink CDMA signals received at the base station from the multiple subscribers may be utilized for the adaptive allocation.") See claims 1-54 (all claiming OFDM on downlink to subscriber); Li 827 discloses that "FIG. 3 is a block diagram of a communication network using OFDM for transmission in one direction and CDMA for transmission in the other direction" wherein "In one embodiment, system 350 comprises a subscriber in a mobile communication system while system 351 comprises a base station. Thus, as shown in FIG. 3, OFDM is used for downlink. The use of OFDM for downlink may maximize the spectral efficiency and the bit rate. CDMA is used for uplink to substantially avoid the large peak-to-average ratio problem of OFDM and to offer multiple-access flexibility". 5:29-6:8. See 6:1-38 ("In one embodiment, system 350 comprises a subscriber in a mobile communication system while system 351 comprises a base station. Thus, as shown in FIG. 3, OFDM is used for downlink. The use of OFDM for downlink may maximize the spectral efficiency and the bit rate. …. In one embodiment, the subcarriers of the OFDM downlink are adaptively allocated to multiple subscribers to achieve multiplexing and to increase (and potentially maximize) the system capacity. Information extracted from uplink CDMA signals received at the base station from the multiple subscribers may be utilized for the adaptive subcarrier allocation This is described in more detail below. In one embodiment, a 5 MHz spectrum is used for each downlink OFDM channel. With pulse shaping, the net bandwidth used for data transmission is 4 MHz, which is divided into 512 subcarriers transmitted in parallel. In one embodiment, each of the OFDM symbols has a length

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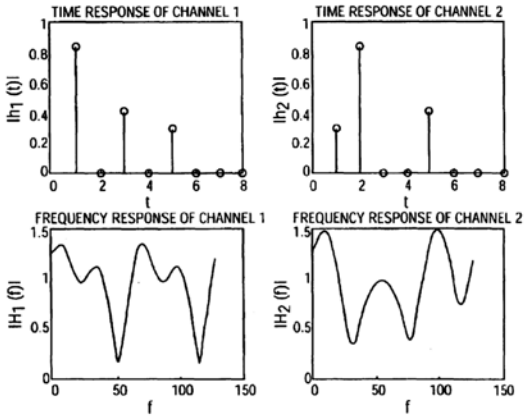
	of duration of 128 microseconds with a guard interval of 24 microseconds. Therefore, the total symbol period is 152 microseconds. In one embodiment, all the subcarriers in one OFDM symbol are used for one subscriber. Service to multiple subscribers may be achieved through time-division multiplexing (TDM), e.g., different subscribers use different OFDM symbols at different times. In another embodiment, the subcarriers in one OFDM symbol can be used by multiple subscribers, each using part of the total subcarriers. In one embodiment, any subcarrier can be assigned to any subscriber. In another embodiment, the granularity of subcarrier assignment is increased to a fixed number of subcarriers, called clusters, as shown in FIGS. 1A and 2. Any subscriber can be assigned any cluster. Subcarrier clustering reduces subcarrier indexing overhead. FIG. 4 is a block diagram of one embodiment of a base station transmitter that uses OFDM for downlink communications.");  FIG. 12

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	See 7:10-24 ("In one embodiment, the base station adaptively allocates subcarriers to subscribers to increase (and potentially maximize) the spectral efficiency. FIG. 12 illustrates channel responses associated with different subscribers. As shown in FIG. 12, the channel responses corresponding to two subscribers are different. Multi-user adaptive loading increases the total system capacity by allocating subcarriers with relatively high signal-to-noise ratios to a subscriber. The frequency responses are sent to a subcarrier allocator at a base station for adaptive subcarrier allocation, so only subcarriers with relatively high signal-to-noise ratios are allocated for the downlink transmission to a subscriber. Furthermore, the FEC coding and modulation scheme can be made adaptive depending on the signal-to-noise ratio of each or multiple subcarriers.") See Fig. 7; 8:11-9:15 ("FIG. 7 is a block diagram of one embodiment of a base station having a receiver and a downlink subcarrier allocator. Referring to FIG. 7, there are n processing paths coupled to the downlink OFDM subcarrier allocator 707. In one embodiment, each processing path is for an individual user. Since all of the other paths perform in the same manner, only one of the paths will be described. … Allocator 707 receives frequency responses from FFT 704 for multiple subscribers and allocates subcarriers based on the responses received. In one embodiment, each user is assigned a unique spreading sequence. Furthermore, the uplink transmission signal may contain a unique training sequence, as described below in conjunction with FIG. 8. The sequence is utilized at the base station to estimate the channel. Once the channel time response is estimated, its frequency response is derived using FFT 704. The frequency responses of all the subscribers are sent to the subcarrier allocator 707 for adaptive subcarrier allocation, as shown in FIG. 7. In one embodiment, the size of FFT 704, in terms of the number of points, after channel estimation is the same as that for downlink OFDM transmission. In another embodiment with subcarrier clustering, the size of FFT 704 after channel estimation is smaller than that for downlink OFDM transmission. For example, if the size of FFT 704 for the downlink OFDM is 512 and the number of consecutive subcarriers in a cluster is 16, only a 32-point FFT is needed for channel-frequency response estimation at the base station receiver.") See Figure 4.

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	6:46-55 ("As shown in FIG. 4, user data 401 1−n comprises data that is to be transmitted to individual subscribers. Multiplexer (MUX) 480, operating as part of a subcarrier allocator, receives the user data 401 1−n and outputs cluster data generated as a result of the allocator allocating subcarrier groups for transmission to individual subscriber and the user data being modulated onto the subcarriers. In an alternative embodiment, MUX 480 is not included and the user data is fed directly to forward error correction (FEC) encoders 402.") See Figure 18; 17:6-26 ("An Exemplary Base Station The base station assigns desirable clusters to the subscriber making the request. In one embodiment, the availability of the cluster for allocation to a subscriber depends on the total traffic load on the cluster. Therefore, the base station selects the clusters not only with high SINR, but also with low traffic load. FIG. 18 is a block diagram of one embodiment of a base station. Referring to FIG. 18, cluster allocation and load scheduling controller 1801 (cluster allocator) collects all the necessary information, including the downlink/uplink SINR of clusters specified for each subscriber (e.g., via SINR/rate indices signals 1813 received from OFDM transceiver 1805) and user data, queue fullness/traffic load (e.g., via user data buffer information 1811 from multi-user data buffer 1802). Using this information, controller 1801 makes the decision on cluster allocation and load scheduling for each user, and stores the decision information in a memory (not shown). Controller 1801 informs the subscribers about the decisions through control signal channels (e.g., control signal/cluster allocation 1812 via OFDM transceiver 1805). Controller 1801 updates the decisions during retraining.") See claims 13, 40, 41, 43 (claiming downlink OFDM subcarrier allocator for adaptive allocation); See Figure 13;

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	See 11:18-13:28 for "An Exemplary Subcarrier/Cluster Allocation Procedure"). One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the OFDM Tone Modification references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
2. The method as recited in claim 1, further comprising: receiving said reverse path data signal over at least one reverse transmission path.	Li 827 discloses receiving said reverse path data signal over at least one reverse transmission path. For example, see the following passages and/or figures, as well as all related disclosures: See discussion of 1[p], 1[a], 1[b], 1[c]. Li 827 discloses receiving the signal on the reverse path (from the subscriber) that it uses to do the channel estimation. One exemplary reverse path with associated signals is the DSSS/CDMA uplink channel referenced in the citations for the claim 1 elements. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base

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	invalidity contention document discussing the Channel Estimation references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
3. The method as recited in claim 2, further comprising: transmitting said modified forward path data signal over at least one forward transmission path.	Li 827 discloses transmitting said modified forward path data signal over at least one forward transmission path. For example, see the following passages and/or figures, as well as all related disclosures: See discussion of 1[p], 1[a], 1[b], 1[c]. Li 827 discloses the base station transmitting the adaptively allocated OFDM signals on the forward path (to the subscriber) based on the uplink channel estimation. One exemplary forward path with associated signals is the OFDM downlink channel referenced in the citations for the claim 1 elements. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the OFDM Tone Modification references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
4. The method as recited in claim 1, wherein said reverse path data signal includes at least one type of data selected from a group of different types of data comprising Orthogonal Frequency Division	Li 827 discloses wherein said reverse path data signal includes at least one type of data selected from a group of different types of data comprising Orthogonal Frequency Division Multiplexing (OFDM) data and Quadrature Phase Shift Keying (QPSK) data. For example, see the following passages and/or figures, as well as all related disclosures: See claim 5.

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Multiplexing (OFDM) data and Quadrature Phase Shift Keying (QPSK) data.	Li discloses that the uplink may use “the IS-95 CDMA systems or the UMTS W-CDMA systems….” 11:8-10. A POSITA would understand that both such systems specify and require QPSK in the uplink (see Holma for WCDMA or Yang for IS-95). Thus, Li 827 discloses this element in view of the knowledge of a POSITA. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants’ Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Channel Estimation and QPSK Usage references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
5. The method as recited in claim 1, wherein said modified forward path data signal includes at least one type of data selected from a group of different types of data comprising Orthogonal Frequency Division Multiplexing (OFDM) data and Quadrature Phase Shift Keying (QPSK) data.	Li 827 discloses The method as recited in claim 1, wherein said modified forward path data signal includes at least one type of data selected from a group of different types of data comprising Orthogonal Frequency Division Multiplexing (OFDM) data and Quadrature Phase Shift Keying (QPSK) data. For example, see the following passages and/or figures, as well as all related disclosures: See discussion of 1[p], 1[a], 1[b], 1[c]. Li 827 discloses the base station transmitting the adaptively allocated OFDM signals on the forward path (to the subscriber) based on the uplink channel estimation. One exemplary forward path with associated signals is the OFDM downlink channel referenced in the citations for the claim 1 elements. See also 6:56-7:9; 12:66-13:27 (QPSK and OFDMA on downlink (forward) channel).

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	One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants’ Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the OFDM Tone Modification and QPSK Usage references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
6. The method as recited in claim 5, wherein said modified forward path data signal includes sub-carrier pre-equalized OFDM data.	Li 827 discloses wherein said modified forward path data signal includes sub-carrier pre-equalized OFDM data. For example, see the following passages and/or figures, as well as all related disclosures: See discussion of 1[p], 1[a], 1[b], 1[c]. Li 827 discloses the base station transmitting the adaptively allocated OFDM signals on the forward path (to the subscriber) based on the uplink channel estimation. One exemplary forward path with associated signals is the OFDM downlink channel referenced in the citations for the claim 1 elements. See citations for claim 5. As detailed in 1[c], Li 827 discloses that the downlink channel includes the sub-carrier pre-equalized OFDM data. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not

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	found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the OFDM Tone Modification references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
7. The method as recited in claim 6, further comprising: generating corresponding Quadrature Phase Shift Keying (QPSK) modulation values based on said sub-carrier pre-equalized OFDM data.	Li 827 discloses generating corresponding Quadrature Phase Shift Keying (QPSK) modulation values based on said sub-carrier pre-equalized OFDM data. For example, see the following passages and/or figures, as well as all related disclosures: See citations for claim 6. See also 6:56-7:9; 12:66-13:27 (QPSK and OFDM on downlink (forward) channel). One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the OFDM Tone Modification and QPSK Usage references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
9. The method as recited in claim 1, wherein said reverse	Li 827 discloses The method as recited in claim 1, wherein said reverse path data signal includes identifiable training data.

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path data signal includes identifiable training data.	For example, see the following passages and/or figures, as well as all related disclosures: See discussion of 1[p], 1[a], 1[b], 1[c]. Li 827 discloses the base station transmitting the adaptively allocated OFDM signals on the forward path (to the subscriber) based on the uplink channel estimation. One exemplary forward path with associated signals is the OFDM downlink channel referenced in the citations for the claim 1 elements. See citations for 1[a], 1[b] detailing how the channel estimation is performed and then converted to a frequency channel estimation. See Figs. 7-8. See 8:59-67 ("In one embodiment, each user is assigned a unique spreading sequence. Furthermore, the uplink transmission signal may contain a unique training sequence, as described below in conjunction with FIG. 8. The sequence is utilized at the base station to estimate the channel. Once the channel time response is estimated, its frequency response is derived using FFT 704. The frequency responses of all the subscribers are sent to the subcarrier allocator 707 for adaptive subcarrier allocation, as shown in FIG. 7.") See 9:16-27 ("FIG. 8 illustrates one embodiment of a data format of a CDMA signal in one time frame. Referring to FIG. 8, data symbols 801 and 803 are on both sides of, optional training symbols, referred to herein as midambles 802. The optional training symbols (midambles), preferably inserted in the middle of the frame, can be used for channel estimation for coherent detection of CDMA signals. The spreading codes for the midambles may be different from the spreading code for the data symbols. Longer spreading codes for the midambles (e.g., twice as long) can improve channel estimation at the receiver and therefore improve the overall performance."); See claim 44 ("44. The communication network defined in claim 43 wherein the channel estimator uses training sequences to generate the channel estimate.")

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	One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Channel Estimation and Training Data references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
10. The method as recited in claim 9, further comprising: comparing said identifiable training data to a local version of said training data to identify said at least one multipath transmission delay within said reverse path data signal.	Li 827 discloses comparing said identifiable training data to a local version of said training data to identify said at least one multipath transmission delay within said reverse path data signal. For example, see the following passages and/or figures, as well as all related disclosures: See citations for claim 9. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Channel Estimation and Training Data references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
12. The method as recited in claim 3, wherein said at least	Li 827 discloses wherein said at least one reverse transmission path is substantially reciprocal to said at least one forward transmission path.

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one reverse transmission path is substantially reciprocal to said at least one forward transmission path.	For example, see the following passages and/or figures, as well as all related disclosures: See discussion of 1[p], 1[a], 1[b] describing that the base station is a transmitting device (e.g., for the downlink OFDM symbols) and that it also determines the pre-equalization parameter and performs the modification of the forward path (downlink) data signal based on the reverse link. The use of the reverse link channel conditions in Li 827 to adapt the forward path transmissions discloses this claim. Li 827 discloses TDD and using reverse path channel response to predict forward path channel response, which a POSITA would understand to necessarily disclose the limitations of this claim element. E.g., Li 827 at claim 37; 5:50-58, 10:29-35. Indeed, the '369 acknowledges that reciprocity was already well-known prior to the '369 patent, particularly for TDD channels. See '369 patent at 7:22-34 ("**As is well known**, many materials are electromagnetically isotropic, which is a property resulting from symmetry in their associated permittivity and permeability tensors. The Lorentz Reciprocity Theorem applies to such materials. Refraction and dielectric reflection from materials therefore often show reciprocity, or equivalence of forward and reverse channel characteristics. Diffraction and reflection are inherently reciprocal due to the minimal media affecting the electromagnetic wave. Thus, reciprocity can be used to determine channel characteristics that are used while pre-equalizing a transmitted path. The use of a reciprocal channel is very useful, for example, when Time Division Duplex (TDD) channels are implemented."). One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have

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	been obvious to combine this reference with one or more other prior art references identified in Defendants’ Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Channel Estimation references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
13. The method as recited in claim 1, wherein identifying said at least one multipath transmission delay, determining said at least one forward path pre-equalization parameter, and modifying said forward path data signal are performed by a transmitting device.	Li 827 discloses wherein identifying said at least one multipath transmission delay, determining said at least one forward path pre-equalization parameter, and modifying said forward path data signal are performed by a transmitting device. For example, see the following passages and/or figures, as well as all related disclosures: See discussion of 1[p], 1[a], 1[b], 1[c]. Li 827 discloses the base station transmitting the adaptively allocated OFDM signals on the forward path (to the subscriber) based on the uplink channel estimation. One exemplary forward path with associated signals is the OFDM downlink channel referenced in the citations for the claim 1 elements. The actions in Li 827 cited in the claim 1 citations are performed by a base station which is a transmitting device as discussed in claim 1. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants’ Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Channel Estimation and OFDM Tone Modification references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.

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14. The method as recited in claim 13, wherein said transmitting device includes a base station device that is operatively configured for use in a wireless communication system.	Li 827 discloses wherein said transmitting device includes a base station device that is operatively configured for use in a wireless communication system. For example, see the following passages and/or figures, as well as all related disclosures: See citations for claim 13. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Channel Estimation and OFDM Tone Modification references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
15. The method as recited in claim 13, further comprising: using at least one transmitting device receive antenna operatively coupled to said transmitting device to receive said reverse path data signal over at least one reverse transmission path from the receiving device.	Li 827 discloses using at least one transmitting device receive antenna operatively coupled to said transmitting device to receive said reverse path data signal over at least one reverse transmission path from the receiving device. For example, see the following passages and/or figures, as well as all related disclosures: See discussion of 1[p], 1[a], 1[b], 1[c]. Li 827 discloses the base station transmitting the adaptively allocated OFDM signals on the forward path (to the subscriber) based on the uplink channel estimation. One exemplary forward path with associated signals is the OFDM downlink channel referenced in the citations for the claim 1 elements. See citations for claim 13.

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	See Figs. 3, 11, 18. The base station has an antenna. See 5:29-67; 10:36-47; claims 25, 32-35. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants’ Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Antenna Arrays references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
19. The method as recited in claim 15, wherein said transmitting device is operatively coupled to a plurality of first device receive antennas.	Li 827 discloses wherein said transmitting device is operatively coupled to a plurality of first device receive antennas. For example, see the following passages and/or figures, as well as all related disclosures: See citations for claim 15. The base station has receive antennas. To the extent that Plaintiff asserts that Li 827 only shows a single receive antenna, the use of multiple antennas to receive the information at the base station would be known to a person of ordinary skill in the art and thus would be disclosed by the disclosure of a single antenna and/or inherent in the disclosure of a single antenna and/or obvious over the disclosure of a single antenna. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been

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	obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Antenna Arrays references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
21. The method as recited in claim 15, wherein determining said at least one forward path pre-equalization parameter based on said at least one transmission delay further includes: determining at least one angle of arrival of said reverse path data signal with respect to said at least one transmitting device receive antenna.	Li 827 discloses wherein determining said at least one forward path pre-equalization parameter based on said at least one transmission delay further includes: determining at least one angle of arrival of said reverse path data signal with respect to said at least one transmitting device receive antenna. For example, see the following passages and/or figures, as well as all related disclosures: See claim 15. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Antenna Arrays references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
28. The method as recited in claim 13, further comprising: using at least one transmitting device transmit antenna	Li 827 discloses using at least one transmitting device transmit antenna operatively coupled to said transmitting device to transmit said modified forward path data signal over at least one forward transmission path to the receiving device.

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operatively coupled to said transmitting device to transmit said modified forward path data signal over at least one forward transmission path to the receiving device.	For example, see the following passages and/or figures, as well as all related disclosures: See citations for claims 1, 13, 15. The transmit antenna on the base station is used to transmit the OFDM signals to the receiving device along the forward (downlink) path. See Figs. 3, 4, 7 and their associated descriptions. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Antenna Arrays references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
32. The method as recited in claim 28, further comprising: setting at least one antenna pointing parameter associated with said at least one transmitting device transmit antenna based on said at least one forward path pre-equalization parameter.	Li 827 discloses setting at least one antenna pointing parameter associated with said at least one transmitting device transmit antenna based on said at least one forward path pre-equalization parameter. For example, see the following passages and/or figures, as well as all related disclosures: One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in

Exhibit E-2

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	Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Antenna Arrays references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
33. The method as recited in claim 28, further comprising: setting at least one phased array antenna transmission directing parameter associated with said at least one transmitting device transmit antenna based on said at least one forward path pre-equalization parameter.	Li 827 discloses setting at least one phased array antenna transmission directing parameter associated with said at least one transmitting device transmit antenna based on said at least one forward path pre-equalization parameter. For example, see the following passages and/or figures, as well as all related disclosures: See claim 1[b], 1[c], 15 One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Antenna Arrays references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
35. The method as recited in claim 28, further comprising: selecting said at least one transmitting device transmit antenna from a plurality of transmitting device transmit antennas that are each	Li 827 discloses selecting said at least one transmitting device transmit antenna from a plurality of transmitting device transmit antennas that are each operatively coupled to said transmitting device. For example, see the following passages and/or figures, as well as all related disclosures: See citations for claims 1, 13, 15. The base station has transmit antennas. To the extent that Plaintiff asserts that Li 827 only shows a single antenna, the use of multiple antennas to transmit

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operatively coupled to said transmitting device.	the information at the base station would be known to a person of ordinary skill in the art and thus would be disclosed by the disclosure of a single antenna and/or inherent in the disclosure of a single antenna and/or obvious over the disclosure of a single antenna. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Antenna Arrays references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
36. The method as recited in claim 35, further comprising: selectively transmitting a plurality of beams using two or more transmitting device transmit antennas.	Li 827 discloses selectively transmitting a plurality of beams using two or more transmitting device transmit antennas. For example, see the following passages and/or figures, as well as all related disclosures: See claim 15. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base

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	invalidity contention document discussing the Antenna Arrays references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
37. The method as recited in claim 36, wherein each of said transmitted plurality of beams is selectively adjusted in phase and amplitude to reduce multipath affects when received by said receiving device.	Li 827 discloses wherein each of said transmitted plurality of beams is selectively adjusted in phase and amplitude to reduce multipath affects when received by said receiving device. For example, see the following passages and/or figures, as well as all related disclosures: See claim 36. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Antenna Arrays references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.
41. The method as recited in claim 1, wherein determining said at least one forward path pre-equalization parameter based on said at least one transmission delay further includes: sub-band equalizing said forward path data signal using	Li 827 discloses wherein determining said at least one forward path pre-equalization parameter based on said at least one transmission delay further includes: sub-band equalizing said forward path data signal using corresponding frequency domain reverse path data. For example, see the following passages and/or figures, as well as all related disclosures: Li 827 discloses this by at least the descriptions of FIG. 3, FIG. 4 and FIG. 7, wherein the "**allocator**" described for Claim 1 element c) above specifically "outputs **cluster data** … allocating subcarrier groups for transmission to individual subscriber and the user data being modulated onto the subcarriers", such "**cluster data**" being an example of "***at least one forward***

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corresponding frequency domain reverse path data.	***path pre-equalization parameter***" specifically for "***sub-band equalizing said forward path data signal using corresponding frequency domain reverse path data***". One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly, the passages in the base invalidity contention document discussing the Channel Estimation and OFDM Tone Modification references. Rather than repeat those disclosures here, they are incorporated by reference into this chart.